

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 March 2004 (04.03.2004)

PCT

(10) International Publication Number
WO 2004/018624 A3

(51) International Patent Classification⁷: **A61K 39/02**,
C07H 21/04, C12P 21/02, C12N 1/21, 15/74, C07K 14/31

(21) International Application Number:
PCT/US2003/025879

(22) International Filing Date: 20 August 2003 (20.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/404,406 20 August 2002 (20.08.2002) US

(71) Applicant (for all designated States except US): **CHIRON CORPORATION** [US/US]; 4560 Horton Street, Emeryville, CA 94608-2916 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FOLGER BRUCE, Klm** [US/US]; 9756 Lakeshore Blvd., NE, Seattle, WA 98115 (US). **WARRENER, Paul** [US/US]; 2803 N.W. 67th Street, Seattle, WA 98117 (US). **MCLARNAN, Jennifer** [US/US]; 1113 5th Avenue S., Apt. 207, Edmonds, WA 98020 (US). **HOU, Kevin** [US/US]; 18123 N.W. Village Park Drive, Issaquah, WA 98027 (US).

(74) Agent: **CHIRON CORPORATION**; 4560 Horton Street, Emeryville, CA 94608-2916 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
25 November 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **RANDOM TRANSPOSON INSERTION IN STAPHYLOCOCCUS AUREUS AND USE THEREOF TO IDENTIFY ESSENTIAL GENES**

(57) **Abstract:** The invention provides a method for generating a database of candidate essential genes in *Staphylococcus aureus*, as well as otherwise important genes that, when mutated, lead to a growth attenuated phenotype. Such genes and mutants of such genes are important for identifying antibacterial agents suitable for treating and preventing *S. aureus* infections. The invention includes methods for confirming the essentiality or importance of candidate genes, as well as methods for utilizing those genes to screen for new antibacterial drugs. The invention also includes the antibacterial agents identified using the disclosed methods, as well as methods of using the same for treating and preventing *Staphylococcus* infection.